AVICULTURAL MAGAZINE

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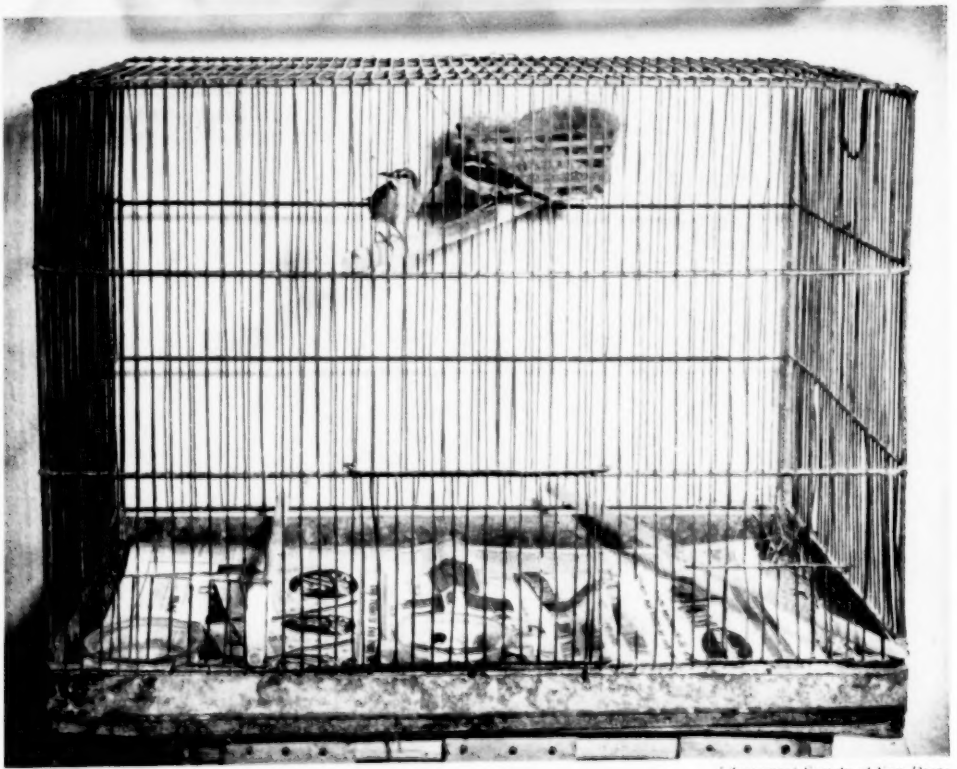

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YELLOW-WINGED SUGAR-BIRDS

and nest 4 × 4 inches and 3 inches high in cage at San Diego Zoo.

AVICULTURAL MAGAZINE

THE JOURNAL OF THE AVICULTURAL SOCIETY
AND THE AVICULTURAL SOCIETY OF AMERICA

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CAGE-BRED YELLOW-WINGED SUGAR-BIRDS

By KENTON C. LINT (San Diego Zoo, San Diego, California)

The Sugar-birds or Honey-creepers (*Cærebidæ*) are brilliantly coloured little birds of the American tropics. They resemble Humming Birds, with their long bills and the combination of bright greens, blues, and reds. Their food includes the nectar of flowers, as well as insects and soft fruits.

The Yellow-winged Sugar-bird (*Cyanerpes cyaneus cyaneus*) has nested on several occasions in captivity, but it is always news when they do so successfully and rear their young to maturity. Mr. William Krebs, in Pasadena, California, raised two nice babies in a large outdoor aviary in 1942. Several other breeding successes have been recorded in outdoor aviaries, many enjoying a semi-liberty captivity in which the birds were allowed freedom to secure the necessary insects and food to feed the babies.

In writing this article, we wish to record the breeding of Yellow-winged Sugar-birds in a small cage, 24 inches long and 14 inches wide, in an indoor bird room. The nest used by this breeding pair measured 4 inches by 4 inches, and was 3 inches high. Many different nesting materials were tried before the birds decided what to use. Dried grasses and the palm fibre from the African Hair Palm (*Chamaerops humilis*) were finally used to build a rather flimsy nest in this little plastic basket.

Yellow-winged Sugar-birds nest late in the year. The first egg was laid 17th June, 1952. The second egg was laid the following day. There has been some controversy concerning the colour of the Sugar-bird eggs. The eggs were white, blotched with rusty red irregular spots. The hen bird started sitting immediately after the second egg was laid. In such a small cage, personal observation of many details was easily made.

After twelve days of incubation, both eggs hatched on 30th June, but the babies were not offered food the first day, as sufficient food

had been assimilated through the egg yolk for this period. The second day, the hen left the nest for the first time to secure food for the babies. Bread and milk sop, soaked raisins, hard-boiled egg yolk, fresh grapes, ripe bananas, and orange supplemented by mealworms form our basic diet for all of our Sugar-birds. The smallest mealworms were the only food the mother bird would carry to her newly-hatched babies. Both babies were smoke-black in colour and ate well from the first time of feeding. The baby birds inserted their tiny bills inside the bill of the mother bird and she pumped the partially digested mealworms into the tiny bills and throats of the baby birds. Both youngsters grew rapidly, fed entirely on mealworms, for eleven days. When eleven days old, I noticed the babies perching on the edge of the nest. When sixteen days old, the babies drank water for the first time, and on the seventeenth day both youngsters ate a little banana by themselves.

The male bird took no part in the incubation or in the feeding of the young at any time. I was always worried lest the male bird might throw the babies out of the nest, so I decided to remove him. The cock bird was removed from the breeding cage when the babies were fourteen days old.

Both babies were still olive-green in colour when twenty-four days old. One was a little darker in colour, especially on the wings, which probably indicated a male bird.

When forty-five days old, I decided to separate the young birds from the mother. She was easily removed and returned to her mate, but she showed a great deal of anxiety at being separated from her babies.

The young birds are almost three months old to-day, and we are satisfied that Yellow-winged Sugar-birds may be raised in small cages, and mealworms are sufficient in the way of insect matter to rear them properly in captivity.

* * *

FURTHER NOTES ON THE RUBY TYRANT IN CAPTIVITY

By Dr. J. STEINBACHER (Frankfurt-am-Main, Germany)

Some considerable time has passed since I wrote in this magazine on *Pyrocephalus rubinus* in freedom and captivity. My first article closed with the establishment of the full moult in the summer of 1951, after I had had the birds for six months. During this the male lost his beautiful ruby red colour of the feathers and assumed a plain grey, spotted plumage. But already new feathers were showing in various parts of the body. This was in August. Four weeks later there was yet another phase. The new red feathers on the back of the head

and throat had disappeared and instead light red spots appeared on the breast and belly, which continuously increased in size, though they did not at first become deeper. Both birds again lost many small feathers and pecked and scratched themselves a great deal, as is usual in the course of the moult.

Their behaviour, however, was quite different to that during the summer moult in July–August. While then they were mostly sluggish and sat motionless, they now were very active, particularly the male. He often threatened the female with open beak and the typical beak snapping, the hard, quick snapping together of the beak, pecked her on the head and neck and drove her from her perch into a corner, at which she uttered complaining calls and crouched down flat. Frequently the male also flew playfully on to the back of the female, whereat she crouched on the perch calling and crying. Also towards humans the male proved to be the far more active of the two, quite in contrast to the behaviour of the pair in the first months of captivity which I have described (AVICULTURAL MAGAZINE, May–June, 1952). It was considerably more fearless, in human parlance it could be said that its self-consciousness now aroused had tremendously increased.

An explanation of these peculiar moulting conditions and the change in behaviour may be that the change of breeding dress was prematurely arrested as the natural food was lacking, so that the plain dress of the female was assumed, but the sex hormones quickly developed further after the moult. The new signs of development of breeding dress then further indicate a final transposition of the rhythm of the southern to that of the northern hemisphere, which the development of the gonads greatly precipitates. The occasional attempts of song and pairing of indigenous birds in autumn certainly show that this is not especially new.

In October I transferred the Ruby Tyrants from the cage to a spacious indoor aviary (125 × 75 × 125 cm.) with a simple wood frame and wire netting. Their behaviour after that did not strikingly alter. They hardly used the large space, kept to certain permanent perching places on their branches, seldom went on the floor where food was placed, and spent the night in separate places. Soon afterwards new deep red feathers again appeared on the top of the head and the light red parts on the breast extended further, but did not become deeper in tone. In the middle of January, after having survived the cold season, when the temperature was often only 6–8° C. in the bird room, without any harm or even any apparent detriment to the well-being of the birds, in addition to the new ruby red feathers in the region of the beak, deep red patches also appeared on the sides of the belly, particularly under the wings. The growth of these new feathers progressed rapidly without any distinguishable loss of feathers. Actually the red feathers pushed between the existing

grey ones and largely covered them. In the process the male became ever more aggressive, chased the female frequently, so that she flew into a corner of the cage, pecked her, and attempted many times to copulate. The female offered hardly any resistance to this and only cried out when the attack came unexpectedly. During February and March the red of the male became increasingly deeper, its extent ever larger and the behaviour more resembled that of the species in the free state. With sharp whip-like calls it flew round the aviary, crest bristling, beak threateningly half open, or more often sharply snapped shut. In April the male was practically as deep a red as in the March of the previous year when I received it from the Argentine. Its accentuated call dominated the room and now the female answered, but often with somewhat complaining calls, obviously inviting copulation. Both birds, particularly the female, searched for plant fibres and other nesting material. I thereupon placed an old Linnet's nest at a height of 1 m. in the aviary which the female then often improved and hopped around.

In May repeated invitations to feed by the male were observed ; it flew round with a mealworm in its beak, alighted on the back of the female and gave her the worm. After that the female, with wings placed high, and moved lightly up and down, and repeated calls " tjee—tjee—tjee " invited pairing. The male then came with sharp " kiss kiss " calls but trod seldom, generally only stood lightly on the back of the female and flew up again with snapping beak. The female sat in and improved the nest, and the male, now also occasionally showed some interest in it, so that I had great hopes for eggs and a brood. Then, in addition to the dried ants eggs, I gave a small portion of fresh ones, and these did not agree with my birds. The male died on 25th May of acute inflammation of the intestines ; all efforts to save it were in vain. Therefore my observations and experiments were interrupted. I hope to be able to continue with them with a new male and eventually also to achieve a brood which was my ambition. But already a series of interesting data have been obtained which were not entirely expected, above all with regard to the change in colour. There is no knowledge of a change of breeding dress in the male to a dull female plumage in the free state and, in my opinion, this is not only due to the physiological effect of captivity, but perhaps also to psychological reasons.

* * *

SOME NOTES ON GRASS PARRAKEETS

By the Duke of Bedford (Woburn, Beds, England)

Breeding Grass Parrakeets is rather like trying to obtain justice in a Court of Law. With regard to the latter, if you have 100 per cent right on your side and no political issues are involved, you have a reasonable chance of getting *some* justice; but you will not get full justice nor will you even get what you do get without a good deal of trouble and disappointment, not to mention expense! In the same way if you provide them with everything that the human mind can devise to promote their health and well-being, you have a fair chance of breeding *some* Grass Parrakeets, but you will not breed as many as you hoped to do, nor will you escape unexpected worries and tragedies.

Last autumn, in preparation for the present season, I secured an imported cock Elegant and a home-bred hen; an imported cock Turquoisine and a home-bred hen; an imported pair of Bourkes, and an imported pair of Splendids.

Although the cock Elegant arrived a bit late in the year for turning out, I decided to risk him in the aviary and he and the hen passed through the winter uneventfully. Elegants are among the hardier and better-behaved of the Grass Parrakeets and one or two aviculturists, by combined good luck and good management, have been able to maintain a healthy breeding stock for a respectable number of years. In some cases they have also kept their birds without artificial heat and this was the plan which I adopted, although, in the end, I had cause to regret it. In April the hen went to nest in a grandfather clock box in a sheltered part of the flight. A few days after she had started to sit an exceptionally hot April day was followed by an exceptionally cold and foggy night. As a result, I found the cock, early next morning, very ill with inflammation of the lungs, and he died an hour or two later. The hen carried on and hatched and reared three good young ones, two cocks and a hen. Lately I have obtained another imported cock for her.

At this point I may, perhaps, say that my Grass Parrakeet aviaries are on fixed sites with tiled floors and are 20 feet in length. They have cosy closed-in shelters with sanded floors.

The hen Turquoisine, a home-bred one, I had had with a cock the previous summer. She nested twice, but of the two young birds in the first round one died and one was killed by the cock as soon as it left the nest. In order to prevent a recurrence of the tragedy, I removed the cock when the second young bird was hatched, and the hen reared it by herself successfully. I disposed of the youngster and its murderous parent, and hoped to make another and more satisfactory start with a new male. This, however, proved easier said

than done. Although they go to nest freely, Turquoisines are, next to the exceedingly difficult Rock and Orange-bellied Grass Parrakeets, the most difficult members of their family to deal with. Though they, too, have been wintered out-of-doors, they get most of the ailments which Parrakeet flesh is heir to, and they do not make good patients, having no great amount of stamina to resist disease. If you give them too much hemp, or if they feel bored with life, they readily take to feather-plucking. They are also exceedingly temperamental. Married couples are given to violent disputes, and many cocks are wife-beaters, and even killers and, as already indicated, some will also destroy their offspring. Well-behaved pairs certainly do exist, but there are all-too-many which are *not* well-behaved ! Another trouble is that the young birds are more apt to die in the nest than with almost any other species of Parrakeet.

There is a further difficulty. The Australian authorities have, I understand, recently tightened up the regulations dealing with the export of native birds, so that if you obtain stock from law-abiding individuals or institutions, they will probably to-day have come from the aviaries of Australian aviculturists and will, more often than not, have been discarded by the latter for some breeding vice or defect, the exact nature of which you will in due course discover ! Australian fanciers have a habit of keeping their birds in aviaries which are much too small and this factor, also, does not encourage good health or good manners in birds which have been long confined in them.

The new cock Turquoisine and his mate, like the pair of Elegants, came through the winter successfully. They too, went to nest in April and the cock, unlike some which I have mentioned, proved a most gentle and devoted husband. Unfortunately, however, his former owner still had an excellent reason for parting with him, the reason being that he appears to possess an unexpected and unwelcome enthusiasm for football ! As soon as his wife started to lay eggs he spent most of his time in the nest-box pushing and kicking them round the place, which did them no good, and entirely prevented her from sitting peacefully on them. After he had ruined two clutches in this way, I decided that desperate measures must be taken. When the first egg of the third clutch appeared, I removed him to another aviary occupied by a bachelor cock Bourke with whom, though very restless, he lived in perfect amity, both gentlemen vindicating the reputation of their respective species of being inoffensive towards other birds.

The hen Turquoisine took her separation very badly and, for a long time, I fully expected she would not sit as, until her sixth egg had been deposited, she was off the nest for the whole day on alternate days. However, at the finish she did decide to incubate and hatched two of her eggs. One chick died almost immediately, but the other

was reared and proved an exceptionally fine young cock showing a trace of his red wing-bar even in nestling plumage. When he was independent I hoped to put the pair together again and secure a second brood, but the very day I meant to put the cock back with his mate, he fell ill. His illness moreover, was a long one, and when eventually he recovered the hen had dropped into moult and he quickly followed her example.

To cope with the problem of temperamental cock Grass Parrakeets one really needs an aviary with a partition and a shelter at each end, so that, when need arises, one can shut off the cock, while still allowing him to see his mate and, if he wishes, to feed her through the wire-netting partition.

One very foolish mistake which people are apt to make with Turquoisines if they should get a well-behaved and prolific pair, is to over-breed from them and allow them to have as many as three nests in succession. A policy which is detrimental to the health even of the hardy Budgerigar is far too great a strain on the delicate constitution of a Grass Parrakeet and in England, at any rate, if a pair of Turquoisines are allowed to rear three broods in one season, they are most unlikely to rear any in the next, probably because one or other of them will have died before another spring comes round.

The two imported Bourke's were fine specimens and delightfully tame and steady. They also possessed an appetite for green food which is rather unusual in their species.

Bourke's are not really Grass Parrakeets at all, but are a species wholly distinct and with no near relatives of any kind. They make excellent foster parents for the Green Grass Parrakeets, but they seem unable even to get as far as fertile eggs if they are mated with them. They are desert birds, and may not even live on grass seed but on the seeds of small plants other than grass which are found in dry areas.

Bourke's certainly *can* die and they equal, and possibly even exceed, the green Grass Parrakeets in their capacity for cracking their skulls against the wire-netting top of their cage or aviary flight, for which reason a covering of branches or some other material is highly desirable, to warn them to check the impetuous upward dash of their flight in a sudden alarm.

Taking everything into consideration, however, they are a good deal hardier than the true Grass Parrakeets and although the members of the British stock now remaining are, from what I have seen of them, often miserable runts, the species I am given to understand, is firmly established in some Continental countries and also in America. Although I have known them suffer from septic fever, they are, in the main, much less susceptible to infectious disease both on the voyage and in aviaries after their arrival and, when in good condition and provided with a dry and cosy shelter they certainly can be wintered

without heat. When of decent size and colour they are charming little birds, with a soft beauty of colouring which matches their gentle musical voices and the pretty whistling sound of their wings. The couple which reached me last autumn at first certainly looked and behaved, like a pair, both cock and hen showing the signs of being in breeding condition normally indicative of the two sexes. After a week or two, however, they both began to exhibit symptoms of eye disease. Strange to say, however—and here again the difference from what would have happened if they had been green Grass Parrakeets was most striking—they did not appear to take the trouble very seriously. They rubbed their eyes and closed them a bit, but it did not seem to prevent their general health from being good nor even, amazing to relate, their coming into breeding condition! (At this time they were being kept in a flight cage in the bird room.) As the weeks went by, however, a mysterious change seemed to come over the "hen" Bourke. "She" and the cock in due course both recovered from the eye disease but "she" also showed signs of recovering from being a hen! In fact, when spring came round the two birds were, to all appearances, well-developed cocks and when I obtained a real hen and put her in the aviary, the difference was most marked. The strange phenomenon of change of sex has of course been observed in one or two species of birds, but not, so far as I am aware, hitherto in the parrot family.

The new hen, also an imported bird, I put with the cock who had always been a cock and moved the other to an empty aviary.

The pair in due course went to nest and hatched and reared one good young one. The hen then went to nest a second time, and hatched four more, but when they were only ten days old the cock started to misbehave himself and knock his wife about so badly that she was unable to attend properly to the wants of her family, with the result that two of them died. The remaining two, though still not fully fledged, I took out of the nest-box and put with their mother in a cage in the bird-room and there, notwithstanding the rough treatment she had received, she reared them and reared them well.

It is very unusual for a cock Bourke to misbehave in this Turquosine-like fashion. It may be that he had been getting too much hemp and wanted to nest again prematurely. The giving of hemp is always a bit of a problem. An unlimited amount is undoubtedly very good for growing young birds, but it may get their fathers into too high condition and cause them to ill-treat their mates or their offspring.

The three young Bourkes which I have now put in the aviary with the odd cock have done very well and it looks as though the particular type of aviary in which I keep them suits the species. They are two cocks and a hen. Even when the birds are fairly young the sexes are not very difficult to distinguish, the hens being smaller and more

slender and having decidedly smaller heads. They also, when adult, have no blue on the forehead but some cocks also lack the blue, especially if they are aviary-bred and of degenerate stock.

The Splendid Grass Parrakeets had a rather unfortunate start as the cock had been placed for a short time in a travelling cage with a spiteful little Dwarf Parrot and arrived with a broken wing. In time his wing mended sufficiently to enable him to fly but it always remained dropped, spoiling his appearance. It was, however, the hen who proved the first casualty. One day in the middle of winter, when she had almost completed her moult and seemed quite fit, I found her looking slightly ill and although at first it looked as if we had got her into the hospital in good time she went down very rapidly and was dead the next day. The post-mortem report was " coccidiosis ", but, as the particular post-mortem examiner to whom I was sending specimens at the time would have given coccidiosis as the cause of death of a bird which had been shot or knocked on the head, I am doubtful of the accuracy of the diagnosis as the symptoms were not those of that very distinctive ailment.

I thought that my chance of breeding Splendids was ended for the year but by good fortune I was able in the spring to obtain another hen from Mr. Holmes Watkins who is having such remarkable success with this species, a success which I trust he will long continue to enjoy. When I introduced the new hen to her mate I hoped to see the courtship display of this, the most gorgeously beautiful of all parrakeets, and wondered what it would be. The cock, however, though quite interested in the new arrival, seemed to feel that he was quite beautiful enough in his ordinary everyday deportment without any extra demonstrations being necessary ; so beyond walking about at a distance and saying " Chuk ! " from time to time, he did not do anything out of the ordinary. They soon, however, became friendly and the hen, who incidentally was less than twelve months old, took to a grandfather clock nest in the flight. Two young birds were hatched and reared leaving the nest just before I returned from Devonshire, the hen laying a second time. When the young had been out for only four days the cock became spiteful with them and I had to remove them hurriedly, feeling, for the first time, that it was perhaps lucky that his wing *had* been damaged or otherwise he might have caught and killed them before I was able to intervene.

The second family of four hatched in due course out of the six eggs laid. The cock was by now becoming very tame and used to wait expectantly for me to bring him some tit-bit. I grew very fond of the beautiful little fellow, a fact duly noted by X, the evil spirit who removes the choicest members of one's collection of birds with a regularity and ingenuity which mere chance cannot adequately account for ! One morning, therefore, when I went to feed him, the

cock Splendid was not in his accustomed place. I looked inside the shelter and on the floor of the shelter and again in the flight, to find him in a corner of the flight. It needed only a second glance to see that he was ill. He was indeed very ill and died within a couple of hours. The post-mortem revealed, in addition to two long-standing ailments which one would have thought would have prevented him from breeding, evidences of a blow on the head, which, as he could not fly very fast and the roof of the flight was well covered with branches, was probably dealt him by X, exasperated that he had been unable to get rid of him by other means ! His widow carried on with her task most heroically and has successfully reared all four young ones which are very fine specimens indeed, but, as she appeared one day with the feathers knocked off the back of her head and the lower part of her rump I gathered that X had had a swipe at her also ! With the claims of a growing family to attend to she became even tamer than her mate and is indeed the tamest and most intelligent Grass Parrakeet I have ever had. She always greeted me with the disyllabic whistle of her species which is so unexpectedly deep in tone for such a small bird. Once, when I went to see how she was getting on and the supply of green food was getting rather short, she flew down and nibbled pointedly at a faded leaf of spinach-beet, looking up at me as she did so. I promised to get her a fresh supply but, having other things to attend to, I forgot all about it. Some time later I walked past the front of the Splendid's aviary nearly thirty yards away, to be arrested by a penetrating whistle from the little lady inside, " What about that spinach-beet you promised to get me ? " I apologized and went and fetched some !

Recently, rather feeling that I was tempting Providence, as I probably am, I obtained three Rock Grass Parrakeets from a Continental dealer. Rock Grass Parrakeets have seldom, if ever, been bred in captivity and have a bad reputation for getting over-fat. So far, the three new birds seem to be doing well and, being rather wild, take plenty of exercise. I have arranged the two perches in the flight so that they are as far apart as possible and, as I believe the species lives largely on the seashore, I have provided a dish of special sea sand and seaweed collected from below the tide-line in case the iodine should provide something essential to their health. Rock Grass Parrakeets are perhaps the most difficult of their family to sex and a single bird is always apt to give one the impression of being a cock, possibly because, by comparison with the more familiar Grass Parrakeets, the species is a large one. If, however, both sexes can be seen together and studied at one's leisure, genuine cocks can be distinguished by the rather greater amount of blue on the face and the slightly heavier head.

Since writing the above, X has made two further onslaughts on the unfortunate Splendids. Although various steps had been taken to

render such a catastrophe unlikely, I went out one morning to find one of the young ones dead with a fractured skull, and the hen and the others with similar, though less serious, head injuries. I then string-netted the whole of the top of the aviary flight only some time later to find another young one dead in the shelter with a fractured skull.

The Rock Grass have turned out to be three cocks and, what is more, no two will agree together, as even when in moult they fight dangerously !

* * *

OBSERVATIONS ON BARBARY-DOVES KEPT AT SEMI-LIBERTY

By Derek Goodwin (Virginia Water, Surrey, England)

The Barbary-Dove (*Streptopelia risoria*), the Ring-Dove of the layman, and—most descriptively—Blonde Ringdove of the Americans, has long been a favourite bird of mine. It has much to recommend it, being hardy, beautiful, harmless to other birds (except related species), and a free breeder. This last is, perhaps, a doubtful virtue, since it is not always easy to find good homes for the surplus young.

Since 1946, and to some extent before the war, I have kept these birds at semi-liberty. So kept they are incomparably more beautiful and interesting than when confined, even in the largest aviary. Some initial trouble may be involved in settling the birds, but it is well worth taking for the extra pleasure and interest which will accrue. This species has none of the homing " instinct " shown by the Pigeon (*Columba livia*) or the Turtle-Dove (*Streptopelia turtur*), and even after years of liberty, may be hopelessly lost less than a quarter of a mile from its home. I think this only happens when it is fleeing from a *pursuing* hawk, or has been disturbed at night, and thus failed to notice the way it has gone. For those desirous of keeping these birds at semi-liberty, the following hints should prove useful, although, of course, much will depend on the individual birds and local circumstances.

(1) Train the birds (before liberating them) to respond to a particular whistle or call to food.

(2) At first let out only one bird of a pair at a time, and the first few times call it in again after five minutes or so, and, if possible, before it has taken a long flight.

(3) Never let out unpaired birds, unless they are home-bred specimens, or have been flying at liberty for some time.

(4) Do not let out young until they are strong on the wing (about three weeks after leaving the nest) unless you do not mind losing a percentage to cats and hawks.

(5) Make the breeding pairs nest inside a shed, aviary, or outhouse. This is easily done by shutting them up in a suitable place when they are seen to be looking for a nest-site.

(6) Call the birds inside a building to feed each evening, and shut them up till morning. In time—at least in winter—roosting inside will become second nature to them, and they will go in to roost like fowls or pigeons. This is less important (and more difficult to achieve) in summer, but when the trees are bare the Doves will almost certainly be taken by Tawny Owls if allowed to roost outside.

(7) Do not shut up birds with others that persistently attack them. This is the most important rule of all, its infringement is cruelty of the worst kind, and one of which many are guilty. In practice this means that except in autumn and winter only paired birds and their still dependent young can be confined together.

The above rules are, of course, a counsel of perfection, and I would not like to say how often I have neglected most of them. In this matter, as in others, however, those who set a bad example are often best qualified to give good advice.

At liberty the Barbary-Dove is a thing of grace and beauty. Its soft buffish-fawn plumage—which bleaches to near-white with long exposure to sun and rain—relieved by the black neck-ring and crimson eye, contrasts pleasingly with vegetation. It has the same swift flight, with " flicking " wing-beats as the common Turtle-Dove, and flies freely. The display flight of the male is similar to that of most " turtle-doves ". The bird flies upwards with loudly-clapping wings, then glides down, often in a half circle, with wings and tail widely spread. I shall never forget the thrill I felt when I saw a bird which had been free only a few minutes perform this flight, which almost certainly neither it nor its ancestors for many generations had previously been able to do. Provided care is taken to see that all birds are getting fed adequately there is no need to segregate breeding pairs when at liberty. The vanquished can always flee from the victor, and the quarrels and jealousies result in an amount of activity that would surprise anyone who only knows this species as a cage-bird.

I have seen it stated that Barbary-Doves at liberty fall an easy prey to natural enemies, and that they do not respond to the alarm notes of other birds. This has certainly not been the case with mine. The tameness which these birds display towards human beings in no way affects their response to predators. Of course, birds that are in imperfect health (which most birds bought from dealers are in my experience) will have their escape reactions affected adversely thereby. Similarly, recently released birds are handicapped by their ignorance of the neighbourhood. These considerations—and the relative vulnerability of fledgelings—apply equally, however, to any other species, wild or domestic. My Barbary-Doves react to the alarm

notes or alarmed behaviour of passerine birds. Whether such responses are due to "learning" or innate recognition of the "frightened" tone discernible in all alarm notes, I am unable to say. Each year I lose one or two adults, and sometimes several young. But it is astonishing how even young ones which—owing to my being too busy to supervise them—have been allowed to wander forth into a world in which predators, both furred and feathered, are common objects, yet manage, more often than not, to survive. With pairs that actually nest outside it is otherwise. Sometimes one or two pairs of my Doves will nest away, usually at a distance from the garden. This only happens because I have not taken the precaution of shutting them up when they have reared one brood and are looking for a new nest-site. In such cases the behaviour of the pair makes it obvious when they are sitting and when feeding young. But in all these cases the young have never appeared and the parents' behaviour shows that they have been lost when from two to three weeks old. I do not know what creature is responsible, but cats, Jays, Crows, Magpies, Tawny Owls, and Sparrow-Hawks are all common locally, and all potential fledgling-eaters.

The escape reactions of the Barbary-Dove when confronted with a hawk (in all cases of fairly close approach which I have seen the Sparrow-Hawk (*Accipiter nisus*) has been the species involved) are of interest and worth describing in some detail. When a hawk is seen high above, or at some distance, the Dove usually remains still and watches it. Usually it shows its fear by sleeking down its plumage, making itself "long and thin" and giving its alarm note. The close (and usually sudden) approach of a hunting Sparrow-Hawk elicits one of two reactions. Most commonly the Dove flies forwards and upwards with a noisy clatter of wings and a speed and acceleration reminiscent of a flushed Partridge. At other times it will "freeze" on its perch in a crouching posture with feathers sleeked down and head stretched forward. If it takes wing the Dove may fly straight into a tree and remain there until it has got over its fright, or else fly forward very fast, gaining height as it goes, for several hundred yards, then turn and fly in high, wide, circles, coming lower as its fears diminish, and finally alighting, still nervous and "on edge", on the highest point of some building. Taking cover, or flying high and circling, seems to depend primarily on whether or not there is a suitable tree in front of the Dove when it begins its headlong dash for safety. It is amazing that a bird travelling at such speed can enter a tree without doing itself serious injury. No doubt it skilfully avoids the larger branches, but at times, to judge from the sound, it crashes through the smaller twigs with considerable force.

I am not sure what determines whether the Dove will freeze or take wing. Crouching in birds—when used in reference to enemies—

is, of course, the preparation or "intention-movement" of leaping up to run or fly. When the bird freezes in a crouching posture (which is a regular and marked behaviour pattern in many species) the reason—psychologically—is almost certainly because some other impulse is in conflict with and inhibiting the impulse to flee. Wild Turtle-Doves (*Streptopelia turtur*) usually freeze in the same manner as that described above if approached by man when they are incubating. Here it is obviously parental feeling and the brooding urge which conflict with and—up to a point—inhibit freezing. One might expect that in the Barbary-Dove crouching and freezing would be a response to a lesser degree of fear than that which elicits fleeing. This does not seem to be the case. On four occasions I have seen a Barbary-Dove (three different individuals) "freeze" in this manner when a hawk suddenly appeared very close. I had the impression that the Dove was literally "paralysed with fear" at the nearness of its enemy. In each case the hawk—which was actually hunting for food at the time—flew straight on over the Dove, passing within a yard or two of it, and apparently failing to notice it. It seems probable that a Sparrow-Hawk in its low, fast, hunting flight, relies chiefly on their movements for spotting potential victims. If this is so, it is doubtless likewise with other accipitrine hawks and thus natural selection might well have favoured survival of those Doves which, when surprised *at very close quarters* by one of these hawks, froze in terror instead of making a vain effort to escape. It is worth mentioning that I have never seen a Barbary crouch and freeze when surprised on the ground, but I have not seen one so surprised at such close quarters as those mentioned above.

The proverbial tameness of the Barbary-Dove towards human beings is shown equally by young that are allowed their liberty from the first as by caged birds. If approached slowly fledglings will allow themselves to be picked up by hand, and although most adults will not permit this, they come readily to the hand for food and so can easily be caught when necessary. Occasionally birds that are much more wild and nervous than normal—although tame by comparison with other species of pigeons—may crop up. One such bird was not only nervous and "jumpy" and very reluctant to feed from the hand, but it had an exceptionally neat head, small delicate bill, and trim shape, thus suggesting a correlation between physical appearance and mental qualities. But this analogy must not be pressed too far, as in the domestic Pigeon birds approaching the wild type are not—other conditions being equal—more timid than most of the coarse monstrosities favoured by the pigeon fancier.

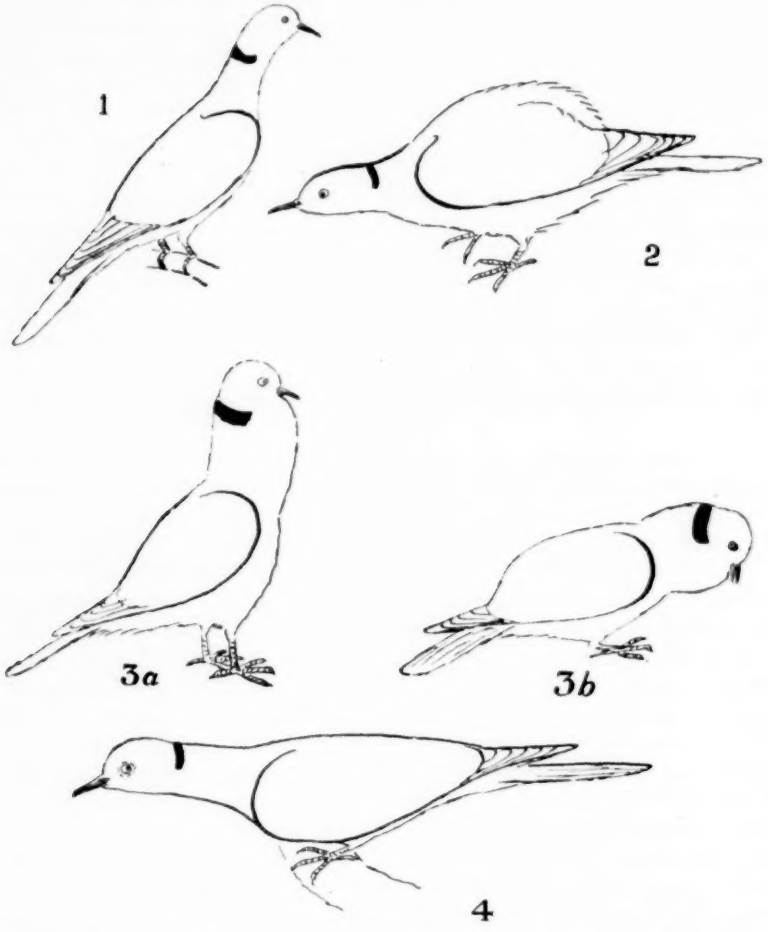
The notes and much of the sexual behaviour of the Barbary has been dealt with by many authors, notably Craig and Whitman, whose works all those interested in pigeons are advised to read. Nevertheless,

it will not be out of place briefly to describe some aspects of it and to deal more fully with observations that are not, so far as I know, duplicated in their works. The coo of the Barbary-Dove, the well-known " Kuk-k'rrooo " or, closer at hand " Kuk k'rrooo-wa ! " is to me one of the most beautiful of all bird sounds. The coo of the female is less loud than the (full) coo of the male, and more broken and almost " trilling " in the middle. The tone and emphasis, as well as the loudness of the coo, varies according to its context, but the differences are not very marked, and cannot well be described in words.

The bird coos when bowing in display, when calling-to-nest, as a greeting to its mate when the latter arrives to take its turn on the nest, as a contact call when the mate is out of sight, to signify its readiness to feed fledged young, when it hears a noise at night, and as an equivalent to the song of male passerine birds. The situations listed above, except for the first two and the last, may not always elicit cooing.

The cooing at night is particularly interesting, since it seems such a potentially lethal habit. It is shared, of course, as is well known, by the domestic pigeon, but as tame Stock-Doves do the same thing, it is unlikely that it is a habit that has arisen—though it may have hypertrophied—under domestication. The night cooing is, or seems to be, a response to some disturbance sufficient to awaken or attract the attention of the roosting Dove, but not sufficient to frighten it (? or to frighten it seriously). As we have seen, the coo is always a note of self-assertion, and may sometimes have a threatening significance. It seems possible then that the Dove coos in response to some mildly alarming stimulus, much as a man might whistle or talk to himself in homologous circumstances. Probably the carrying out of the self-assertive act of cooing has a " reassuring " effect on the bird performing it. Thus the " ignorant " natives in some parts of the world who—so I am told—say that when the Barbary-Dove in its cage coos at night, it does so to frighten away evil spirits, are, in a sense, right in their psychological implications if not in their material interpretation thereof. Female Barbaries do not normally use the bowing display—even when homosexually paired—but an unpaired female, not in male company will often become very " masculine " in behaviour, and display to any strange bird placed with her. Cooing, and to a lesser extent the laughing cry, appear to be linked with the reproductive cycle, and birds that are sexually inactive are relatively—but not entirely—silent.

Both sexes utter the laughing cry (a mirthless, jeering laugh) that is so characteristic of the species. Craig's statement that this cry corresponds to the human word " Hello " and can have as many different meanings is most apt and true. It is fundamentally, I think, a note of aggression, and the Dove always utters it in a posture (head



1. Alarmed posture. 2. Aggressive posture, jumping forward to attack, the laughing cry is uttered in this position. 3. The two phases of the display. 4. Crouching and freezing at approach of hawk.

Note.—The above figures are not drawn to scale.

lowered and thrust forward, back arched, rump feathers erected) which is essentially one of attack, although it has become incorporated in the sexual behaviour of paired birds. The Barbary-Dove uses this cry when it approaches another bird with aggressive or sexual intent, when it sees its mate after a short absence, when it alights on a perch *in its territory* or (especially) when it alights *at or near its nest.* The oft-repeated statement that it gives this call "every time it

5 6

5. Defensive threat posture (Adult). Compare with Fig. 6. 6. Defensive threat posture (Fledgling).

alights " is, I feel sure, based on observations of caged birds which had of necessity to be " alighting near the nest " every time they changed their position. The laughing cry is used by both members of a pair immediately after copulation. The male bird, when hopping towards another bird (if it is a stranger or his own mate, not if it is a known rival) in the aggressive posture and giving the laughing cry, will often change into display and at the moment of transition the laughing cry merges into a coo, the intermediate sounds being almost comically curious.

I do not find my Barbaries breed throughout the year, as they are said to do when caged. In early January there is a resumption of frequent cooing, its intensity being dependent rather on the amount of sunlight than the temperature. Sometimes a pair will lay in that month, but more often it is late February or March before the first eggs are laid. Breeding then continues till August or September. By mid-September the adults are in full moult and breeding has usually ceased, although there are often young still in the nest. Once a pair laid eggs in late September and reared the resultant young successfully. Barbaries usually lay again, in a new nest, when the young are from three to five weeks old, sometimes even earlier. The female ceases to feed the young when, or soon after, she again begins to incubate. She tolerates and seems rather to invite than repel their company until the eggs hatch. The moment an egg of the second nest hatches she ceases to tolerate the young of the first brood, and

attacks them fiercely if they are in the vicinity of the nest. The male continues to feed the young of the first brood whilst incubating the eggs of the second, or at any rate for some time after incubation commences, but he usually ceases to feed them before the second brood hatch. After this happens he never feeds the older young, and gradually ceases to tolerate them, but he does not show the same sudden change from friendly tolerance to violent hatred as does the hen.

In order to effect some compromise between my desire to let my Doves fulfil their natural impulses and my desire to have the minimum number of young produced, I allow each pair to rear only two, or at most three broods per year. This I achieve by boiling the eggs of at least every other clutch. I have read that if Doves are not allowed to feed young after sitting the soft food " sours in their crops " and makes them ill. This, I am sure, is a fallacy. I have had many different pairs sitting on boiled eggs, and have never known one show signs of illness. Whether in the absence of feeding the soft food is shed off I do not know, but close watching of Doves feeding very callow young has convinced me that some of the soft food brought up into the gullet is normally re-swallowed by the parent. Doubtless it then passes from the crop to the stomach in the normal manner and does not, in some strange way, remain in the crop and go sour.

Paired Barbary-Doves show great affection for each other, and should they be accidentally or deliberately separated for some time their excitement on being reunited is touching. When at liberty their quarrels with their neighbours doubtless strengthen the bond between them. Very rarely a pair that are nesting will suddenly, and inexplicably, start to fight each other in the vicinity of their nest. Even on the two occasions when I witnessed the commencements of such fights I was unable to determine what " started them off ". Once such a fight is on each bird seems to regard the other as an intruding stranger. Since both are on their own territory, indeed at the very heart of it, each fights with the utmost determination, and the more opposition it receives the more its " self-righteous " fury increases. Since morally both birds are " in the right " this is one of the few instances where the issue of a fight between two birds of the same species depends on sheer physical strength. Hence the female is always worsted in the end, although she fights with reckless courage, flying back to the nest site and renewing the combat no matter how many times she is beaten to the ground. Fearing that she might be killed, I have always taken away the female at this stage, when she has been to all appearances on the point of complete collapse. It has been some hours before she has appeared recovered and on the pair being reunited they have greeted each other " as if there had never been a cross word between them ". These rare fights between paired birds appear to take place because for some reason the partners

suddenly react to each other as they would to the sight of a strange Dove at their nest-site. How or why this occurs I have no idea, but it may (or may not) be significant that I have never seen such a fight between pairs of females, whereas two males paired together—who were normally devoted to each other—had at least four such fights during the two years that they were paired.

That two female Barbary-Doves will often pair together is well known. Such pairings never take place if an eligible male is at hand, but once paired personal affection, or habituation, will keep the two females together, even if an active male is trying to entice one away. Such females, although regularly performing the mating ceremony with each other, nevertheless often adopt the coition-inviting posture if a male displays to them. Hence, if they are allowed to mix with other birds, such pairs are not denied the joys and trials of parenthood. But the owner should remove two of the four eggs laid.

It must be emphasized, since the contrary has often been inferred, that Doves that form homosexual pairs are in no sense " abnormal ", nor do they when so paired show behaviour normally confined to the opposite sex. The most they do is to show behaviour patterns *that are common to both sexes*, but that one sex usually indulges in to a much greater degree, rather more than they would if homosexually paired. For example, " calling to nest ", taking the active role in copulation, and seeking and bringing home nesting-material are all actions normally performed chiefly by the male, but by the female—even in heterosexual pairs—to some extent. When two females are paired, it is obvious that each will be presented with the stimuli to perform such actions more often than would normally be the case. On the other hand, displaying to the mate (bowing and cooing) is a behaviour pattern confined to the male in normal pairs (although the isolated *unpaired* female may become " masculine " and display), and *effective* nest-building movements are confined to the female. Neither of these two behaviour patterns are—in my experience—shown by the opposite sex as a result of homosexual pairing. The female paired to another female never displays to it. The male paired to another male does not build a nest, although if the nest-site is a box or basket from which the material he and his partner bring cannot easily fall an apology for a nest may accrue from the birds sitting on the material brought.

Pair-formation between two male Doves is of very rare occurrence. It has been said to occur through one bird cowing the other to such an extent that the latter shows female behaviour. This I very much doubt. Certainly if after a fight one male was so exhausted that it crouched on the floor the other might, in all probability, attempt to copulate with it. The situation releasing copulation—or attempts thereat—is the very simple one of a Dove remaining motionless in

a crouched or flattened posture. Even a heterosexually paired female will usually attempt to copulate if presented with a dove-skin stuffed in such a posture. I have seen only one pair of male Doves, and one of male Pigeons (*Columba livia*), but I took some care in observing their behaviour, and in neither case was there anything to suggest that one of the partners was " cowed " by the other, and they both continued to show characteristically masculine behaviour.

The behaviour of the two male Barbaries is worth giving in some detail, since in other accounts of such pairings the birds usually appear to have been captive, whereas these were for the most part allowed their liberty in the company of others of their kind. They were two nest-mates, bred in early spring from a pair which I had given to a friend. The parents were lost and these two young were kept together in a small outhouse till October, and then given back to me. I placed them in a roomy shed along with three other birds of the same year (which subsequently proved to be all females) and two old females that were paired to each other. The birds were kept confined during the week and released all day on Saturday and Sunday, the only days I was home at evening early enough to get them in for the night. I was busy at the time, and paid them little attention. The sex of the birds soon became evident (apart from behaviour, when related birds are compared, the cocks are paler in colour, longer in shape, and heavier in the head than the hens), but it was not until March that it suddenly struck me that although I had for over a month seen two Doves " nesting " on a suitable ledge, no eggs had been laid and no proper nest built. Suspicion once aroused was soon confirmed, the two males were paired together—having no doubt formed a deep affection for each other when they had been isolated from all other Doves in their youth—and the others had sorted themselves out into two pairs of hens, and an odd hen who was making frantic attempts to get herself paired to one or both of the two males.

Observations on this male pair gave interesting suggestions as to the most important factors binding normal pairs, and confirmed my previous opinion that the mutual fondling and nest-calling on the nest-site plays a more important role in maintaining the pair-bond than does the mating ceremony. These two males seldom mated with each other, and they very rarely displayed to each other. They would, however, often perform both these behaviour patterns as a result of the excitement of seeing each other again if they had (artificially) been kept apart for some hours.

They constantly and persistently chased female Doves (appearing well able to distinguish their sex, but perhaps this was due to individual recognition), displaying to them, and attempting to copulate with them. They never indulged in pre-copulatory billing with a female

(as they did when they mated with each other), even when, as often happened, an unpaired hen bird eagerly tried to initiate it with one or other of them. They never showed the slightest sexual jealousy towards one another. It was an extraordinary sight to see them displaying simultaneously to the same female, one on either side. Even more spectacular was their display flight, as they would fly up together, side by side, and perform " in time " with each other.

Except for their four fights previously mentioned, which were exactly the same as those sometimes indulged in by normal pairs and of whose meaning I am completely ignorant, the two brothers always gave the impression of being " two minds with but a single thought, two hearts that beat as one ". Since the " single thought " commonly centred around beating-up a neighbour or trying to inflict on his wife a fate popularly supposed to be worse than death, their partnership was probably less amusing to their fellows than to the human spectator. These two males hatched and reared many young ones, their owner acting as a " good fairy " and supplying them, after they had been " nesting " for some time, with a nest of sorts complete with eggs. Under such conditions the sight of the eggs naturally induced them to start incubation at once. They found no difficulty in dividing the daylight hours on duty between them, but were at first reluctant to sit at night. This was understandable, since the male normally, in addition to not sitting at night, roosts well away from the nest as soon as the female starts to sit. On the other hand, Doves respond to the sight of their eggs lying uncovered, in some cases even to the sight of the partner who should be on duty away from the nest, by going to the nest and commencing to incubate, even " out of turn ". These two males were thus nightly torn between conflicting impulses. Neither " wanted " to incubate all night and whichever was sitting in late evening would leave the nest at the " least excuse ". If, for example, the other brother alighted near the nest-site, the sitter would consider himself as relieved, and hurriedly quit the nest. This often resulted in the eggs being left all night, but if I caught one of the errant birds, showed it the exposed eggs and then placed it on the nest-edge it would usually cover them. But in every instance the birds seemed to " learn " after the first few days of incubation—or the brooding-drive became stronger—and the eggs were not thereafter left even at dusk. It was not always the same bird which remained on the nest at night.

After this state of affairs had continued for some two years I decided that the following spring I would separate the brothers and see if they would then pair normally if offered suitable mates. I had little doubt they would prove quite normal, although I was a little curious. In spite of their constant pursuit of females and forcible attempts to mount them, on one occasion when I had seen a female eagerly

soliciting one of them, he had merely walked round and round her, continually making the intention-movements of mounting, but seeming " unable " to do so. But I was not able to put the matter to the proof. I neglected to get the brothers in one autumn evening, and I never saw them again. I expect they were killed by a Tawny Owl, but shall never know for sure.

My Barbary-Doves seem to have little idea of foraging for themselves. They pick about the garden and sometimes on the near roadsides, but they do not go off into the fields as do domestic Pigeons. They eat the seeds of various weeds, and in late summer, although ready enough to take their usual rations, they are sometimes birds missing at mealtimes, and those that come often have crops half-full. Over one of their favourite resting-trees—a crab apple—black bryony grows in profusion, and the Doves feed readily on the dull red berries. Inexperienced birds often fill their crops with the berries of the mountain ash, but this makes them violently sick, the bird looks ill and vomits up the contents of both crop and stomach, and will never touch a rowanberry thereafter. On one occasion, thinking it would do no harm, I spent half an hour breaking up shelled acorns and handing the pieces to seven of my Doves who eagerly swallowed them. As a result all were very ill for days, three of them dying on the second and third days, and the rest recovering. It is strange that a food eaten with impunity by so many wild birds—although in captivity Jays are the only birds I know that will eat acorns eagerly—should have had this effect, but there can be little doubt the acorns were responsible as three Doves which had not eaten them remained perfectly fit.

The attacking posture of the Barbary-Dove, when the bird jumps forward with lowered head, uttering its laughing cry, has already been mentioned. This form of attack is probably always in some degree linked with sexual or territorial feeling (it is also shown with essentially the same movement pattern towards the mate). The attacking bird does not show fear, and it attacks with the bill. When Doves fight, that is to say when the attacker meets with opposition, the wings are the chief weapons used, the birds cuffing hard at each other, and each trying to get on to the other's back to strike down at it. When thus engaged they show to some degree the second form of threat posture. In this the bird puffs out all its feathers, raises the far wing, may spread its tail on the side towards the enemy, and strikes out with the near wing. This form of threat, the effect of which is to make the Dove look as large and terrifying as possible, is common to other Doves and Pigeons, and is shown by disturbed nestlings from an early age, usually before they are half-fledged. The young draw in loud puffing breaths and also make a snapping sound that is correlated with a movement of the mandibles and generally supposed to be made by their clicking together. No such snapping sound is

heard in the adults (although the adult male Stock-dove (*Columba oenas*) uses this bill-clicking in its display), but they draw the loud panting breaths and often give the alarm note—which in all Doves I know of is a very similar little gasping moan—very intensely. At low intensity, as with all other displays, the postures and movements are much less marked.

The above behaviour is shown when the bird seems to be torn between fear and anger, or, to speak ethologically, when its escape drive and aggressive drive are simultaneously activated. The intensity of the display is directly correlated with the degree of fear the bird is feeling. Hence it is usually seen in more extreme forms when the Dove is opposed to some other species than when intra-specific quarrels are concerned. I have seen a male Barbary and a female Turtle-Dove (*Streptopelia turtur*) (at different times) in very intense "fear-threat" display when attacking a tame Magpie that alighted a few yards from the nest on which its mate was brooding. It is very commonly adopted by brooding Doves when a human being closely approaches the nest, although in full version it is shown less often by the Barbary than by wild species of Doves (in captivity) or rather timid domestic Pigeons. The tamer Barbary-Dove, although it often attacks the hand, does not usually go into very full "fear-threat" display when it does so.

Although we thus see that the bird appears to be impelled both by fear and aggressiveness, yet it is possible that the anger, and resultant aggressiveness, may perhaps have secondarily arisen *because* the bird was torn by conflicting impulses. In other words the brooding Dove may not stay on its nest and threaten and fight because it was, in the first place, impelled by aggressiveness as well as fear, but the aggressive feeling may have arisen because the bird was impelled at once by two conflicting impulses.

That conflicting impulses, which are of course at the same time always thwarted, or at any rate partially thwarted impulses, can in birds, as in man, arouse aggressive feeling is easily demonstrated with the Barbary-Dove. One has a Dove which is fairly tame, but still not quite tame enough to feed from the hand, and one tries to tame it by throwing it a few tit-bits, and then when it has eaten those lying near the hand one proffers it a peanut or other titbit in one's fingers. The bird—which a moment before was impelled solely by the feeding drive—will "bristle-up" into fear-threat display as it comes up to the hand, and will usually actually strike out with its wing as it takes the nut from the fingers. Sometimes indeed its courage will just suffice for it to come right up to the hand, but then fail, and it will strike out and hit the hand offering the food, but retire without taking the nut. Here one has evidently *made* the bird feel and act aggressively because one has forced it into a situation where it was impelled by the conflicting claims of fear and hunger.

From the foregoing it will be seen that the fear-threat display has something in common with crouching and freezing, in that both occur when the escape drive is inhibited. Psychologically, the different behaviour patterns may depend on whether or not aggressive feeling as well as other impulses are evoked by the situation. Biologically the behaviour, like most if not all behaviour patterns, would seem to have survival value. Except in reference to man, threat display and attack or defence of nest seems only to be shown to such creatures as the Dove might possibly defeat, or at least intimidate, and not towards those against which it could have no chance.

Alternative behaviour-patterns are shown by incubating Doves (taken as species, not as individuals) toward man. Birds of a comparable degree of tameness (or wildness) may *either* go into fear-threat display or else crouch and freeze on the nest. In my experience the same bird never shows both forms of behaviour on different occasions. If one puts one's hand under the bird in fear-threat display, it attacks it in a furious " hysterical " manner. If one puts one's hand under the " freezing " bird it makes no movement to defend the nest. Wilder birds flee the nest when approached—but after having initially either " frozen " or gone into threat display—and perfectly tame birds sit calm and unafraid, sometimes fighting the intruding hand, but showing no trace of fear when so doing. Naturally every intergradation between the three degrees of tameness may be shown. The above remarks apply to Turtle-Doves and Palm-Doves (*Streptopelia senegalensis*) as well as to Barbaries. Indeed, I must admit that Barbaries do not show the four behaviour patterns linked with the three stages of tameness very well, since they are very seldom wild enough to leave the nest when touched. Wild Turtle-Doves and Palm-Doves always—in my limited experience— " freeze " on the nest when approached, and never go into threat display, although a male Palm-Dove that had been in captivity only a few weeks did so.

If one puts one's hand over a brooding or incubating Barbary-Dove and grasps it lightly round the body, it may respond by sudden convulsive movements of both wings and legs. The wings are moved quickly, one would say they are beaten but for the fact that they are not unfolded and do not move more than an inch or so out from the body. The legs at the same time stamp up and down quickly and forcibly, so as to produce a rapid, almost rattling, sound as they strike the nest. This behaviour is shown by some birds more than others (by some not at all) and mostly when the eggs are chipping or the young still callow. The convulsive movements suggest fear, but they are given by perfectly tame birds that are used to being handled on the nest and will always accept food from the hand, even immediately after having given these movements. I think, however, that these movements may be a low-intensity form of some " injury-

feigning " behaviour which I have not seen. It is noteworthy that although this behaviour seems relatively rare, or ill-developed, in Doves, it has been recorded in a fairly intense form in the Indian Ring-Dove (*Streptopelia decaocto*) which is a very close relative of the domestic bird.

I find my Barbaries when at liberty perch with equal freedom on trees and buildings, with perhaps a greater tendency to rest on the former. They do not tend to choose large or high trees, but commonly perch from 8 to 20 feet from the ground. Even when perching on buildings they tend rather to alight or rest on one-storey buildings than on high roofs. For song-posts male birds choose exposed branches, roof-ridges, and especially the tops of telephone poles, but here again a fairly open situation rather than height seems to be the main criterion. Unpaired males naturally " sing " and wander more than paired ones. An adult male who was unpaired throughout the spring and summer 1952, spent so much time cooing in sun or rain that his plumage bleached several shades paler than that of his fellows. His two furthest song posts were a quarter of a mile apart.

At times a Barbary-Dove will vanish, and after it has been " missing, believed killed " for weeks or even months, will reappear none the worse. Whether the bird has got its own living or fed at someone's bird table in the interim I have never been able to find out.

Even more remarkable was the case of an old hen Barbary. In her tenth year she was sitting on a nest in a rose pergola. Coming down the garden one July morning, I saw the nest and broken eggs on the ground, which was bestrewn with Dove feathers. I assumed that an owl or hawk had killed the female on the nest. The following December, I received a post-card saying that my " pigeon " had been caught in his garden by a man living some six miles away. I fetched the bird, which proved to be the old female Dove, in quite good condition. It seems likely that she had been getting her own living, as being ringed and very tame it is unlikely that she would have been fed by people without being caught by them. Anyone catching her would surely either have informed me, or else removed the " name and address " ring from her leg. The bird is still alive and well, in her twelfth year. This, however, is no great age for a Barbary, and I believe birds of over 30 years old have been recorded in the AVICULTURAL MAGAZINE.

P.S.—The line-sketches in this paper are intended only to give an idea of the various postures described. They are not intended to be feather for feather drawings, and—as will I fear be painfully obvious—no attempt has been made at detailed exactitude.

* * *

KELP GEESE AND FLIGHTLESS STEAMER DUCK FROM THE FALKLAND ISLANDS FOR THE SEVERN WILDFOWL TRUST

By William J. L. Sladen (Oxford, England)

Falkland or Greater Kelp Goose (*Chloephaga hybrida malvinarum*)

A pair of juveniles were brought into Stanley from Fox Bay, West Falklands, on 20th June, 1951. Details of their rearing by Mr. Perry, of Fox Bay, were obtained by post later. "Two very young goslings taken from a nest were reared on bread and milk. They were then run with the ducks and hens and picked up food there." I was also told that they would eat grass well. They were full winged and tame. As soon as they arrived in Stanley their wings were clipped. On 22nd June they were transferred to the Falkland Islands Dependencies Survey Vessel "John Biscoe".

Travelling Box.—The size recommended by Mr. Peter Scott for one-bird crates was 32 inches long, 24 inches wide, and 26 inches high. The birds were kept together in a larger crate as they were used to each others company. The sloping slats were 2 inches wide with 3-inch openings between, otherwise the design was the same as recommended in the Severn Wildfowl Trust Third Annual Report (1949–1950). Four feeding tins were tied to the slats with string. One each for fresh water, sea water, bread soaked in fresh water, and (after St. Vincents) bananas in fresh water. A sack curtain was draped over the front of the crate.

Cleanliness.—The birds stood on wire netting. A tray below the netting was an unnecessary refinement as the crate was hosed at least once a day. Careful attention was paid to thorough cleaning of wood work around the feeding tins. If this was not done once a day, mould would collect where bread was slobbered over the woodwork when feeding. When passing through the tropics it sometimes reached the sporing stage within 24 hours. Any food not consumed was thrown away daily when the crate was washed. The birds were usually sprayed gently with salt water and at no time during the voyage did they fail to preen themselves. In cool wet weather they were not sprayed.

Draughts.—When passing through the tropics the crate was put in a place of maximum draught, but in the more temperate zones, draughty places were avoided.

Food in the Wild State.—The usual food of the Kelp Goose is "luche", a flat green ribbon-like seaweed, *Porphyra umbilicalis*, which they pick up along the seashore. In autumn, birds are often seen wandering inland and Falkland Islanders have told me that they will feed on Diddle-dee fruit (*Empetrum rubrum*) and even grass. Two birds

(JB212/1–2) dissected on 22nd May, 1949, at Fox Bay had crops full of Malvina berries (*Myrteola nummularia*) and occasional leaves. One male (JB201/1) dissected 22nd April, 1949, had a crop full of stringy seaweed and occasional minute shells and crustacea intermingled. It is impossible to say whether the animal matter was purposely eaten or taken in unintentionally with the weed.

Food for the Journey.—Blaauw (1913) succeeded in transporting a captive Lesser Kelp Goose (*C. hybrida hybrida*) back to Holland by feeding it on dried luche which was soaked in water immediately before use. Alastair Morrison (1947) succeeded in bringing back a large number of the same sub-species. Through inadequate drying, most of his luche went bad, so the diet for the rest of the voyage had to be soaked biscuit supplemented by a little lettuce and luche. I had hoped to collect a supply of the seaweed but had no time before the ship sailed. The plan had been to dry it thoroughly and store it in 7-lb. tins with soldered press-lids to keep airtight for the tropics until required.

Dehydrated cabbage might be worth a trial. They liked it fresh, but would not touch it when cooked. It should therefore be tried soaked in cold water first.

Bread soaked in fresh water was always available. The two of them together never consumed more than one full tin a day (1 to 1½ lb.).

At Montevideo 100 lettuces were purchased. These were very small, 6 to 7 constituting an average English lettuce. A fresh supply of 40 lettuces, supplemented by some surplus leaves from the galley had to keep them going from St. Vincents, Cape Verde Islands to Rotterdam. The St. Vincents lettuces were even smaller. From Montevideo to Rotterdam they had an average of five lettuces a day. At Rotterdam full-sized lettuces were bought and they easily trebled their previous consumption before arriving in Southampton.

Old shirts and cigarettes were bartered for bananas over the side of the ship at St. Vincents and from here to England the birds ate four a day. The fruit was chopped into small pieces and dropped into a tin quarter-full of fresh water. It stuck to their bills and mouths, but they enjoyed it nevertheless and found it much easier to swallow if mixed with water.

Other food taken included chopped up raw cabbage, pineapple, and crushed tinned peas. Of all the food tried, lettuce was the most appreciated and was taken from the hand.

Travelling.—The geese kept in good condition throughout the voyage. They were very thin to start with but we thought they gained a little weight. They were charmingly tame, thanks to the Perrys of Fox Bay.

We brought back a cargo of seal oil which was off-loaded at Rotterdam. Here, on 24th July, they were thoroughly soaked during a day of continual rain. They were restless and noisy all that evening, so

I took them down to my cabin where they had full run of the floor and were soon preening themselves and happy. One of the male's wings started drooping during the last 48 hours and showed no signs of improvement when we arrived at Southampton on 26th July; it however made a good recovery at the Severn Wildfowl Trust.

Falkland Flightless Steamer Duck or "Logger Duck" (*Tachyeres brachypterus*)

Methods of Capturing Wild Birds.—Being flightless and gregarious, these birds should not be difficult to catch, but they present problems of their own. They roost at night above high water but are readily disturbed and, though they show little shyness, always keep at a safe distance. They are strong birds with powerful bills.

The following methods are known.

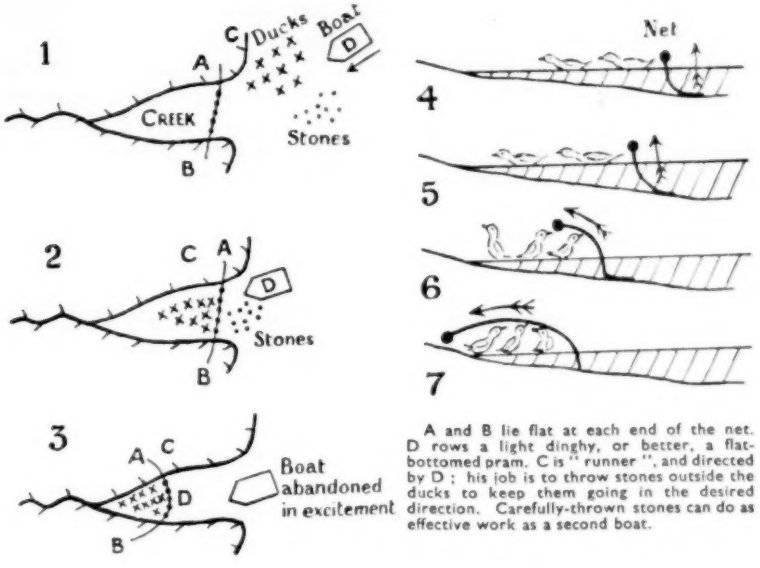
Daylight.—(1) Chasing them in calm water in a motor-boat. They can travel at some speed on the surface and almost, but not quite, become airborne. When the boat catches up they dive and alter course. If the boat is manœuvrable enough, it can zig-zag after them until they get so short of breath that they can dive no more. It is then possible to pick them out of the water.

(2) Driving them on to the land by several rowing boats converging on a narrow creek. Once on land, they are said to be helpless and easily caught.

At night.—(3) Driving them very carefully up a creek on to land by boat party, a wading party converging on them from the flanks with powerful torches and catching them by hand when on shore. This method was used in June, 1949, when we caught a pair. One of these (a female) reached the Severn Wildfowl Trust by "John Biscoe". It is not a very satisfactory method as the ducks are apt to panic and dive back under the boat and waders in shallow water.

(4) Driving them over a fishing net spread across a narrow creek, then dragging the net in behind the birds until it can be raised out of the water and dropped on top of them. This method was used in June, 1951.

With a bit of experience this method could prove very effective. We caught three at the first attempt, but had more in the net to start with. The small party swam quite unsuspectingly over the cork floats. On the second attempt nothing would induce the birds to swim over the net again in the same creek. We tried another creek and drove them successfully over the net but could not pull it in towards the shore because it became tangled among the boulders and debris. This method is therefore dependent on a muddy or sandy creek. It would be better to have a fishing net without cork floats, but these are not always easy to come by.



A and B lie flat at each end of the net. D rows a light dinghy, or better, a flat-bottomed pram. C is " runner ", and directed by D ; his job is to throw stones outside the ducks to keep them going in the desired direction. Carefully-thrown stones can do as effective work as a second boat.

I think these, and even Kelp Geese could be caught without much difficulty by one person, or at the most two, by choosing a dark stormy night with a strong wind blowing in from the water, and dazzling the birds with a powerful torch. I found this method very effective for catching Sheathbills (*Chionis alba*) at Signy Island, South Orkneys, for ringing. This is a small white intelligent bird, but quite helpless in absolute darkness when dazzled by a strong light. The roar of the waves drowns all sounds of approach. One of the secrets of success is to advance rapidly with the torch focussed on the bird all the time.

Travelling Boxes and Cleanliness.—One male and two females caught three days before the ship sailed were kept for most of the voyage in separate boxes of the size recommended for the Kelp Geese. The same attention to cleanliness was observed.

Food.—Each box had four feeding tins. One each for salt and fresh water, bread soaked in water and pollard mixed with bread and maize. Throughout the voyage they showed a preference for bread soaked in fresh water, rarely touching the pollard and maize unless hungry. Banana, lettuce, and cabbage were ignored. The male would eat cooked fish when mixed with bread, though he hardly ever touched raw chopped flying-fish that landed on board overnight. They drank from the fresh water tin and would sometimes attempt to bathe by ducking their heads into it and throwing the water back, but never seemed to do more than dabble their bills in the salt water. This preference for fresh water is of interest and is discussed later. They

started feeding between 7 and 10 days after capture. Each bird would eat an average of 1 to 1½ lb. of soaked bread daily.

Travelling.—The male settled down better than the two females, but they were always restless and trying to get out when the sack curtain was up. One of the females was so determined in her efforts that she succeeded in loosening a slat and escaped. She was last seen swimming in the direction of land approximately 105 miles off the Brazilian coast south of Rio de Janeiro. If an obscure species of duck is described by Brazilian ornithologists, it may prove to be our "Logger duck" which was given a good send-off towards the coast by "Biscoe's" wash.

The soaking that the birds had at Rotterdam probably accelerated the lung condition of the remaining female. On arrival at Southampton she looked very ill and did not survive the car journey to Slimbridge. Post-mortem and microscopic examination revealed extensive lesions of mycotic disease of the air sacs. Culture of these grew a pure growth of *Aspergillus fumigatus*.

Mycosis and Foodstuffs

Ten samples of mould from slobbered bread, maize, and other foodstuffs given to the birds were taken by sterile swab and cultured on Sabouraud's media. Nine different moulds were isolated but no *Aspergillus fumigatus*. Nor were any considered pathogenic; yet the female Steamer duck died of Aspergillosis on arrival in spite of precautions. Perhaps infected foodstuffs are not such an important factor as lowered resistance. A susceptible bird in poor condition might pick up the *Aspergillus fumigatus* spores from the atmosphere and succumb to the disease whatever precautions were taken. It would however be unwise to jump to any conclusions without a more thorough investigation than could be carried out on this occasion. No prophylactic potassium iodide was given (Yealland 1949).

Fresh versus Salt Water

A definite preference for fresh water was noted in both the Kelp Geese and Steamer Ducks. The position of the water tins was changed every day, yet they always chose the fresh and did little but dabble their bills in the salt. It is possible that they took in a small amount of salt water on these occasions, but it was insignificant compared with the fresh. They also preferred bread soaked in fresh water. In the wild state these species are almost entirely maritime. Close field study may throw some light on this unexpected preference. It is possible that these, and other maritime ducks, spend much of their time in creeks into which fresh water is running. The change from the marine life of the wild state to fresh water life of captivity may not be quite such a physiological upheaval as might at first be suspected. However, even

if they do drink fresh water only, they must take in a fair quantity of salt when they feed from the shore. This lack may have to be compensated for in captivity.

Acknowledgments

I would like to express my thanks to His Excellency the Governor of the Falkland Islands, Sir Miles Clifford, for his interest and for permission to take the birds out of the Falklands : to Captain Johnston of the " John Biscoe ", and all on board who helped during the long voyage back : to Mr. E. M. Cawkell and Mr. Jack Bowles who helped in many practical ways in the Falklands, and to Dr. G. Smith of the London School of Hygiene and Tropical Medicine for kindly identifying the moulds.

Summary

A pair of hand-reared Falkland Kelp Geese and three Falkland Flightless Steamer Ducks were taken back to England on board s/v " John Biscoe ".

During the 35 days voyage the Kelp Geese were fed on bread soaked in water supplemented by fresh lettuce and bananas.

The Steamer Ducks preferred soaked bread to anything else offered.

One Steamer Duck escaped when the ship was south of Rio de Janeiro.

Methods of catching Steamer Ducks are described.

Cultures made from moulds on foodstuffs grew no pathogenic fungi, yet one bird died of Aspergillosis on arrival.

The preference that both these maritime species showed for fresh rather than salt water is discussed.

References

Blaauw, F. E., 1913. *My Antarctic Goose.* Avicultural Magazine (3) 4 : 144–49.
Morrison, A., 1947. *Chilean Waterfowl.* Ibid., 53 : 200–206.
Yealland, J., 1949. *Mycosis in Birds.* Ibid., 55 : 20–22.

* * *

FIRST BREEDING OF THE MANYCOLOUR PARRAKEET IN THE U.S.A.

By David M. West (Montebello, California, U.S.A.)

Although it was possible to import psittacine birds into the U.S.A. during the 1930's, apparently only a very few Manycolours were ever imported. Probably many aviculturists failed to make the effort, due to the bad reputation Manycolours had gained for being delicate and difficult to keep in good condition in captivity.

In the U.S. the only living Manycolour for many years was in the collection of the late I. D. Putnam in San Diego. This hen reared hybrid young with a male Stanley while in the Putnam collection. The young bird from this union was a female, and I remember it as a rather splotchy and washed out reddish coloured bird about intermediate in size between the two parents.

If I am not mistaken, Mr. Putnam had secured a pair of Manycolours about 1938. At the time he said that there were only about two pairs imported, and that he could secure only one of the two pairs. His pair eventually nested and had fertile eggs, but unfortunately the male died during incubation and the hen deserted the eggs, thus ending his experience with the species. He once told me it was the greatest avicultural disappointment he ever experienced.

In 1950 we were fortunate enough to secure from a zoo two imported pairs and an extra hen of this species. These birds arrived in the U.S. during July of 1950, and were released from their quarantine period in late 1950. By October the Korean war effort had resulted in the mobilization of many Reservists, and in October I was stationed in San Francisco some 450 miles from Los Angeles. On my first free week-end I drove down to Los Angeles to see these new, long-hoped-for additions. They really were in fine condition, and I was extremely pleased with them.

In 1951 the only "success" was with the odd hen bird which laid and incubated five eggs. She was later mated to a male Red Rump, who suddenly turned on her and literally ripped her to pieces. Although both mated pairs were seen to mate they never appeared too serious in their intentions, and no results were obtained in 1951.

In 1952, one pair nested very early in February. I think they had visited the nest box almost constantly for some fifty days before this hen actually began to lay. Naturally I was very excited about this chance to breed *P. multicolor* for the first time in America.

At this point our narrative takes a dismal turn, and we have only a failure to contemplate. After about two weeks of incubation I was awakened one night to hear the birds all calling and flying about in a night fright, caused by a cat on the aviaries. I turned on the lights

in the yard and soon all the birds had quietened down, but unfortunately the female Manycolour had left the nest and would not return. Finally, in desperation I took her six eggs (of which five were fertile), and they were driven over to a friend's house and placed under Shell Parrakeets. With an extremely heavy heart I finally turned in about four in the morning—wondering why I ever grew out of the Pigeon-raising stage in avicultural development.

Subsequently all five young hatched, but unfortunately they all died in a few days, despite the fact they were hand-fed. So, to date, the closest to a successful breeding in the U.S. were five dead chicks—and a very frustrated aviculturist. Several weeks following these unhappy and discouraging events "Lady Luck" began to shine. Both pairs of Manycolours got busy and started to get their nests ready for families. The rather odd thing was that both pairs actually started to nest on the same day—10th March. Here the similarity ended for the first pair (that had the abortive first nest) were models of perfection with the hen sitting very close and the male attentive. The second pair were quite casual about the entire affair and this hen spent more time sitting in her doorway than on her eggs. I never really had any faith in this second pair, for the hen was very nervous and would leave her nest every time she heard a noise. Later we shall see that she surprised me.

Another great difference was in the pre-nesting habits of the two pairs. The first pair spent several weeks getting their nest ready while the second pair spent only a few hours. Already mentioned was the difference between the two hens as regards their nests—and sticking close to their eggs. Both pairs hatched simultaneously and proved to be very good parents. They ate great amounts of bread and green seeding grasses. After about the seventh day the females spent considerable time away from their nests during the day. In both cases the males fed both their hens and also entered the nests and fed the young directly. Both males were seen to enter the nests the second day following the hatching of the young—presumably to feed.

Food mixtures included a standard mixture of seed composed of one part millet, one part oat groats, two parts canary, and all the sunflower they would use. To this was added one-quarter apple and one-quarter orange daily, plus a liberal amount of soaked (water) bread and green seeding grasses. The nest-boxes in both cases were hung under a shelter, but about six inches from the edge of the shelter. Both the boxes were of a size commonly used for Grass (*Neophema*) Parrakeets and *Agapornis* in the U.S. Wood shavings were used to fill the boxes. When the boxes were cleaned and readied for the breeding season we used this method: (1) filled the box *half full* of woodshavings, and (2) poured water on them. (3) Following this we added dry shavings, filling the box up to the nesting entrance. This

allows the moisture gradually to seep up to the eggs, and has always worked very satisfactorily. The important thing to remember in doing this is that it is done about forty-five days in advance of the hanging of the box. Naturally if you did this just a day or so in advance of the hanging of the box, you might have a nest much too cold and damp.

The aviary sizes were different in these two nestings. One pair were in a cage 16 feet long, while the other pair were in a cage 12 feet long. Both pens were three feet wide with good shelters, and were in the sun for a period every day. During the time the birds were nesting, Southern California had some very unusual rains, including one storm that dropped some seven inches of rain in one day. Even so, the Manycolours managed to look chipper throughout the storm.

The pair that took their procreational activities so lightly deserted their youngsters about the fourteenth day. I believe that the trouble was that the male had mated to the hen again and subsequently they left their three babies. Oddly, they made no attempt to nest again—and dropped into a moult.

The first pair proceeded right along with their family, and consumed great quantities of feed. They ate very large amounts of bread, and little wonder when we saw the final result—six youngsters ! It is odd, but we could never hear the young being fed—they certainly were very quiet babies.

The Manycoloured is rather widely distributed over Central Australia and Southern Queensland to Victoria, and also Western Australia. In Australia it apparently is a rather common bird, both in the wild state and also in the bird shops, etc. I have seen some references to the fact that at certain times of the year they are for sale for as little as 5*s*. in Australia.

The six youngsters all looked very nice, and were relatively quiet and steady. They were easily sexed the day they left the nest, for the four young males were paler editions of the father, and the two young hens closely resembled their dusky mother. Some of the young males were brighter than others.

The six youngsters and their parents really do make a very nice showing. We will mate the youngsters up and probably split up the other adult pair that seemed to be so nervous.

Though their tails were rather short upon leaving the nest, they grew very rapidly, and in about three weeks their tails were as long as the parents. The young are wonderfully steady and quiet, and appear to be even more tame than their parents.

Just why one finds so many printed references to their supposedly being delicate, I do not know. I rather imagine that they are very delicate when first trapped, and are hardy when once acclimatized. I have seen printed statements to this effect.

Judging from various articles in the older issues of the *Avicultural Magazine*, the Manycolour has long been fairly easily and frequently bred in Europe.

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OFFICERS FOR 1953

A Council Meeting was held on 12th November, 1952, in the Council Room, Zoological Society of London.

There were the following retirements and appointments :—

Council : Mr. B. H. Dulanty, Mr. D. H. S. Risdon, and Mr. Peter Scott retired by seniority : the Rt. Hon. the Viscount Chaplin withdrew.

Captain A. Clarence, Mr. K. A. Norris, Mr. S. Porter, and Mr. R. C. J. Sawyer were elected to fill the vacancies.

ARTHUR A. PRESTWICH,
Hon. Secretary

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LONDON ZOO NOTES

By JOHN YEALLAND

A fine Monkey-eating Eagle (*Pithecophaga jefferyi*) has been sent as a present from Mr. Alex Lawrance who caught it in the Philippine Islands. It is hoped that this bird is a male, for the female presented by Mr. Whitley in 1939 laid an egg a few years ago and she seemed pleased to see another of her own kind. Other presentations include a Virginian Cardinal (*Cardinalis cardinalis*) ; a Red-billed Pintail (*Anas erythrorhyncha*) and a Black Kite (*Milvus migrans*).

A Blue-winged Goose (*Cyanochen cyanoptera*) ; five East African Barethroated Francolins (*Pternistis leucoscepus infuscatus*) ; an Olive Sunbird (*Cyanomitra olivacea*), new to the collection ; and a Cape Dove (*Œna capensis*) were received in exchange. A Rufous-necked Weaver has been bred at the Bird House.

The King Penguin chick is now twelve weeks old and weighs 25 pounds. The father died from pneumonia a month ago ; he was otherwise in perfect condition and weighed 36 lb. 10 oz., so there was no evidence that he suffered as a result of his onerous task. The father of the first Edinburgh chick reared in 1919, monopolized the egg and chick as this one did, and he also died, evidently from malnutrition, for he weighed only 25 pounds.

Three pairs of Black-footed Penguins are now nesting.

* * *

BRITISH AVICULTURISTS' CLUB

The thirty-fifth meeting of the Club was held at the Rembrandt Hotel, Thurloe Place, South Kensington, S.W. 7, on Wednesday, 12th November, 1952, following a dinner at 7 p.m.

Chairman : D. Seth-Smith.

Members of the Club : Mrs. J. R. Alderson, Miss P. Barclay-Smith, H.G. the Duke of Bedford, Miss K. Bonner, Mrs. V. M. Bourne, Captain A. Clarence, G. T. Clark, Mrs. G. T. Clark, T. Crewes, A. H. D'Aeth, Mrs. I. Darnton, W. T. Dring, O. E. Dunmore, A. Ezra (Patron), J. C. Garratt, Miss D. Gask, F. Grant, H. J. Harman, Dr. E. Hindle, G. T. Iles, Miss E. M. Knobel (Club Hostess), Miss M. H. Knobel-Harman, D. R. Lovell, P. H. Maxwell, G. S. Mottershead, S. Murray, K. A. Norris, A. A. Prestwich, J. H. Reay, D. M. Reid-Henry, D. H. S. Risdon, R. C. J. Sawyer, J. Seago, R. Stone, R. A. Taylor, E. N. T. Vane, C. H. Wastell, H. Wilmot, J. J. Yealland.

Guests : M. Allen, S. Allen, J. Bailey, R. Bloom, Miss K. Dring, T. W. Dring, Mrs. W. T. Dring, Mrs. J. C. Garratt, Mrs. F. Grant, Miss P. A. Lawford, Mrs. R. Maurice, Mrs. S. Murray, Mrs. J. H. Reay, Mrs. D. Seth-Smith, Mrs. R. A. Taylor, Miss M. White, Mrs. H. Wilmot, A. J. Woods.

Members of the Club, 40 ; guests, 18 ; total, 58.

K. A. Norris showed a further selection of his hand-coloured slides, " Birds—Here, There, and Everywhere ". This series dealt mainly with the birds seen in and about the speaker's Surrey garden, and birds observed in the Welsh hills ; together with several excellent photographs of Badgers and their young. The slides, about one hundred, were of the very high standard associated with Norris and were obviously fully appreciated by the large audience.

The next meeting of the Club is on **14th, January, 1953.**

ARTHUR A. PRESTWICH,
Hon. Secretary.

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REVIEWS

BREEDING BIRDS OF KASHMIR. By R. S. P. Bates and E. H. N. Lowther. Illustrated, with 151 photographs by the authors, and 5 coloured plates by Mrs. D. V. Cowen. Oxford University Press, 1952. 38*s.* net.

This book deals with that part of Kashmir which lies to the south of the Karakarom range, and is on the border between the Palaearctic and Indian Zoological regions. Though most of the birds belong to the former region, and some are very similar to European species, there are a few purely Indian which extend into the area up the valley of the Jhelum River. Most of the birds are residents, but many, too, are summer visitors, which after the breeding season descend to the foothills of the Himalayas and the plains of India. Quite a number of the species are the same as those found about the hill stations in the Western Himalayas, such as the Black Bulbul, White-cheeked Bulbul, Redstarts, and Rock Thrushes as well as several of Doves and the Chukar; of the last-named bird Colonel Delmé Radcliffe had a delightfully tame example from Kashmir, which followed him in the streets of Bombay, and when he was at home he took it to Switzerland, much to the amusement of people taking part in winter sports.

Both the authors are well known photographers of Indian birds, and have paid many visits to Kashmir for the purpose of studying the birds and taking pictures of both them and their nests. Their notes on habits are full of interest, and add considerably to our knowledge of the birds of that part of the world. These observations do not always agree with statements in the standard work on Indian birds, but here we have first-hand observations, and not what an author has written from the notes of others.

The photographs are of a high standard, and the coloured plates should be helpful in identifying species.

N. K.

RECORDS OF PARROTS BRED IN CAPTIVITY. Part VI: Grass Parrakeets. By Arthur A. Prestwich. London, 1952. Price 7*s.* 6*d.*

This sixth volume of the valuable series deals with the Grass Parrakeets and comprises 24 species. A full account of the breeding of Budgerigars and the many different colour varieties achieved is of particular interest.

P. B-S.

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BIRDS OF BRITAIN CALENDAR. Country Life. Price 5*s*. 6*d*. (including tax); posted abroad, 5*s*.

This excellent calendar (measuring 10 in. by $8\frac{5}{8}$ in.) contains twelve of Eric Hosking's superb photographs, one for each month of the year, with short descriptive text. The reproductions well maintain the high standard that is expected of *Country Life* publications and the calendar should prove a most useful and attractive Christmas or New Year present. P. B-S.

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NOTES

MY PESQUET'S PARROT (*Psittrichas fulgidus*).

I do not propose giving a detailed description of this Parrot, as there is a coloured plate by Roland Green of the bird then living at Regent's Park, and an account by F. Shaw Mayer of the species in its natural habitat, New Guinea, in the AVICULTURAL MAGAZINE, July, 1936.

There is a mounted specimen in the Bird Gallery, Natural History Museum, and a specimen can be seen in the natural history collection of the Birmingham City Museum.

My present bird was collected by Shaw Mayer and brought home with his collection by Frost in July this year. It is fed on bananas, apples, plums, grapes; it also likes some carrots and boiled potato occasionally. Each morning with its fruit it has some "Sunnybix" and sponge roll, over which some condensed milk is poured. Owing to the nature of the food its excreta is rather copious, necessitating frequent cleaning of the cage and perches, even more often than with a Lory.

The bird is sprayed with a flower spray, as are all the psittacines in the Parrot House at Whipsnade, and occasionally I give it a wipe with a damp cloth.

The voice is really most remarkable. The Duke of Bedford wrote of a bird in his collection: "Her voice was awful and suggested a mixture of a rattle, a klaxon horn, and the yell of a Banksian Cockatoo," a pretty fair description.

P. H. MAXWELL.

* * *

CORRESPONDENCE

POLYNEURITIS, CONJUNCTIVITIS AND COCCIDIOSIS IN BIRDS

Those who imported Australian Parrakeets in the days before the ban may recall that on occasion some of them—Kings, Crimson-winged, Barraband's, and Black-tailed—arrived in apparently good health but for being paralysed in the legs. Broadtails and others were not affected in this way. Some adult Harlequin Ducks caught in Iceland during the Spring of 1951, all developed paralysis of the legs within a few weeks of being brought back, but Long-tailed and Barrow's Golden-eye whose summer diet must be much the same, remained unaffected.

The Harlequin Ducks readily responded to treatment with dried yeast in the food, making complete recoveries, and it would appear that the paralysed Parrakeets were also suffering from a vitamin B deficiency. It is strange that some—not particularly specialized feeders—should be so sensitive to a vitamin B deficiency while others are not.

An analogous case is that of the contagious conjunctivitis to which the Grass Parrakeets, Kings, Crimson-winged, Barraband's, and Black-tailed seem the most susceptible, the Broadtails and Budgerigars much less so, and the Ring-necked, Alexandrine, and Plum-headed, which are sometimes imported in conditions

under which this disease might be expected to develop, remain almost if not quite immune.

It is, by the way, an excellent thing that at last this disease is to be investigated on really scientific lines, for conjunctival inflammation from whatever cause presents such similar symptoms that diagnosis from appearances alone must sometimes be erroneous.

For the same reason one wonders whether there is such widespread coccidiosis among parrakeets. No pathologist would be rash enough to diagnose this disease by appearances alone and without a careful examination of the fæces, so diagnosis by those with no pathological knowledge must be largely in the nature of guesswork. Coccidiosis is a disease associated with the intensive rearing and keeping of ground or water birds, for its spread is due to contamination of food and water by infected fæces and so the chance of an outbreak among parrakeets kept in pairs in clean aviaries must be small.

Blount (*Diseases of Poultry*, p. 443) says: "In general, the different species of coccidia are strictly host specific, and the coccidia of the chicken are uninfective to other poultry." Which of the many species of coccidia is so pathogenic to parrakeets?

J. J. YEALLAND.

ZOOLOGICAL SOCIETY OF LONDON,
REGENT'S PARK, LONDON, N.W. 8.

Replying to the correspondence evoked by my "Psittacorial Notes", first with regard to coccidiosis. I am sorry that the Duke of Bedford understood me to suggest that Sulphamezathine was worse than useless for this scourge, on the contrary, it has been most successful in many instances, and my concluding remarks on the subject were to the effect that, whenever coccidiosis was suspected I reverted to the immediate use of the drug. I emphasized that correct diagnosis was essential, but that the expense and waste of time of microscopical examination in the laboratory was worse than useless if, as I had been informed, it was possible, if unlikely, to obtain a negative result during a certain stage of the development of the disease.

As regards eye disease, Dr. Lake's offer of assistance was most welcome and constructive, and I know that some have already taken advantage of it and further experiments are now being carried out by the doctor. The following note may clarify my suggestion that careless handling was a contributory cause in these cases. In a shipment of birds which travelled for eight weeks the losses were very high and many of the survivors suffered from eye disease, although all were supposed to be in perfect health when dispatched. Again in a consignment sent by air there were several losses and many specimens were badly infected on arrival, which ended fatally in many cases, although all were reputed to be in perfect health when dispatched only eight days previously. This I find hard to believe, and my suggestion was that through rough handling—parrakeets are invariably grabbed self-defensively behind the neck without ceremony—when being changed from cage to cage the eyes frequently become covered with grit and dirt which must be very painful to the bird. In trying to effect some relief the victim rubs its eye along the perch which is generally fouled whilst travelling. Under such conditions, if only one bird had a touch of conjunctivitis, it is going to spread rapidly and aggravate any unhealthy condition in its incipient stage. Observation of any affected bird will quickly make my meaning clear, its persistent and vigorous rubbing of both eyes along the perch is very apparent. I can recall suffering one summer from a very infectious form of conjunctivitis, and although the doctors were probably right in telling me, as a small boy, that there was nothing in my eye, and on no account was I to rub it, I was never convinced that they knew what they were talking about, and in view of the very contagious nature of this epidemic I can well imagine that if we had all used the same handkerchiefs or towels to ease the pain in our eyes, just as the birds use the same perch whilst travelling, the results would have been equally disastrous and broadcast.

E. N. T. VANE.

FAIRACRE,
BALLINGER,
BUCKS.

OF KINGS, SPLENDIDS AND—EYE DISEASE

The Honorary Secretary in his records of Parrots and Parrot-like birds bred in captivity, gives 1948 as the last recorded date for the breeding of the Australian King in England. Very few have been successful, but a pair imported in 1951 reared two exceptionally fine young here this season with no fuss or bother whatever. Then unfortunately one day in the early autumn, the adult hen seemed not quite right. She responded well to heat and sulphamezanthine, but suddenly fell away, and a *post mortem* examination revealed intestinal catarrh as the cause of death.

Splendids have proved ridiculously easy to breed, two hens rearing seventeen young in the season. The former tendency for both young and adult to crack their skulls against the roof netting appears to have been bred out of the modern bird. Both hens carried green leaf when sitting, one completely carpeting the bed of her nest.

As the Duke of Bedford once pointed out, there are certainly two forms of eye disease. A young Hooded cock imported during the summer arrived with the acute form—considerable swelling of the lids accompanied by a watery discharge from the eye itself. It responded successfully, though considerably more slowly, to the treatment used by me with imported Splendids last season which had, what the Duke has described as, the chronic form of the disease.

T. R. Holmes Watkins.

Oronsay,
The Ellipse,
Griffithstown, Mon.

YOUNG RED-LEGGED PARTRIDGES

May I express my indebtedness to the many who have offered homes to the Red-legged Partridges. I regret I was unable to reply personally to every letter and hope that the writers of those left unanswered will accept this apology in lieu.

Derek Goodwin.

"Tofts,"
Monks Lane,
Virginia Water, Surrey.

* * *

CANDIDATES FOR ELECTION

H. Bates, 51 Dakato Avenue, Fresno, California, U.S.A. Proposed by Payson Vucovich.

P. C. Bath, High Barns Farm, Roxton, Beds. Proposed by Arthur A. Prestwich.

C. H. Bratley, 14 The Ridge, Woodlands, Nr. Doncaster. Proposed by N. Nicholson.

W. H. Carr, Murray Lodge, Newmarket. Proposed by R. Frayne.

J. C. Clayton, 127 Egerton Street, Farnworth, Nr. Bolton, Lancs. Proposed by R. T. Crofts.

S. Clayton, "Camla," 11 Duchess Drive, Newmarket. Proposed by R. Frayne.

S. J. A. Dale, Wagg Street, Congleton, Cheshire. Proposed by R. T. Crofts.

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P. Frampton, 53 Brunker Road, Broadmeadow, N.S.W., Australia. Proposed by R. A. Scott.

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C. J. Knös, Ludvigsborg, Sweden. Proposed by J. Yealland.

F. Logan, 21 Plantagenet Street, Nottingham. Proposed by Sydney Porter.

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Miss L. B. Roden, Buckles, Burwash Common, Sussex. Proposed by H. A. Fooks.

G. van den Brink, Jr., "Avifauna" Park, Alphen a.d. Rijn Holland. Proposed by L. Raymaekers.

N. V. Whitehouse, 185 George Street, Brisbane, Australia. Proposed by A. H. Gardner.

T. B. Whitford, F.Z.S., Bridge Road, Chessington, Surrey. Proposed by Miss E. Maud Knobel.

NEW MEMBERS

The thirteen Candidates for Election, proposed in the September–October, 1952, number of the Avicultural Magazine, were duly elected members of the Society,

CHANGES OF ADDRESS

Mr. and Mrs. John E. Adlard, to 108 Grenville House, Dolphin Square, London, S.W. 1.

E. H. Bailey, to Cleaghmon, Ballinasloe, Co. Galway, Eire.

Miss E. Lemon, to 3007 Wilson Avenue, South Burnaby, B.C., Canada.

C. L. Sibley, to Sunnyfields Farm, Wallingford, Conn., U.S.A.

R. A. Scott, to 1 Lambton Road, Broadmeadow, N.S.W., Australia.

MEMBERS' ADVERTISEMENTS

The charge for Members' advertisements is ONE PENNY PER WORD. *Payment must accompany the advertisement, which must be sent on or before the 15th of the month to* A. A. PRESTWICH, 61 CHASE ROAD, OAKWOOD, N. 14. *All members of the Society are entitled to use this column, but the Council reserves the right to refuse any advertisements they consider unsuitable.*

FOR SALE

1952 Silver and Amherst Pheasants; Golden-mantled Rosella Parrakeets; 1951 Peahen. Wanted: Mikado, Tragopan, or Peacock Pheasants.—T. BARR, Beanscroft, Kilmarnock, Ayrshire.

1952 aviary-bred Zebras, related, heated room since October; 2 cocks, 6 hens; £5.—Mrs. J. DALZIEL BIRRELL, Christmas Cottage, Chidham, Chichester, Sussex.

Unrelated pair young Golden Pheasants (cock in full colour), £3.—MARK VINSON, The Beeches Farm, Cowden, Nr. Edenbridge, Kent.

WANTED

Pairs, Greylag, Snow, Bean, and White-fronted Geese.—A. F. MOODY, Lilford, Oundle, Peterborough.

Adult cock White Rhea, or exchange for adult cock Darwin's Rhea.—A. F. C. A. VAN HEYST, Amersfoort, Holland.

Educated young Englishman, keen, experienced zoologist and aviculturist, desires responsible position anywhere connected with animals and birds; administrative experience, travelled widely.—Write "Cornwall", c/o Hon. Secretary, 61 Chase Road, Oakwood, N. 14.

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